

CLAIMS

What is claimed is:

1. A computing device for securely executing authorized code, said
5 computing device comprising:
 - a protected memory for storing authorized code, which contains an original digital signature; and
 - a processor in signal communication with said protected memory for preparing to execute code from the protected memory by verifying that a
10 digital signature contained in said code is original in accordance with a public key, and if said original digital signature is verified, then branching to a copy of said authorized code in said protected memory to begin execution.
2. A computing device as recited in Claim 1 wherein said protected
15 memory is cryptographically protected.
3. A computing device as recited in Claim 1 wherein the integrity of the contents of said protected memory is protected by encryption.
- 20 4. A computing device as recited in Claim 1 wherein said protected

memory is physically protected.

5. A computing device as recited in Claim 1 wherein said public key is stored in said protected memory.

5

6. A computing device as recited in Claim 1 wherein at least one of the integrity of said authorized code and the privacy of said authorized code is protected at run time.

10 7. A computing device as recited in Claim 6 wherein the integrity of said authorized code is protected at run time with symmetric key encryption.

8. A computing device as recited in Claim 6, wherein the privacy of said authorized code is protected at run time with symmetric key encryption.

15

9. A computing device as defined in Claim 1 wherein:
the protected memory stores code with an original digital signature corresponding to an Owner Public Key; and

the processor verifies the Owner Public Key in accordance with a
20 Manufacturer Public Key, which is resident on the processor, and then

verifies the original digital signature in accordance with the Owner Public Key.

10. A computing device as defined in Claim 9, further comprising:
reading means for reading a Certificate containing an Owner Public

5 Key;

validation means for validating the Certificate with the Manufacturer
Public Key;

matching means for finding the Owner Public Key in the Certificate that
matches the Owner Number in the processor; and

10 verification means for using the matched Owner Public Key to verify
the authorized code.

11. A method for ensuring that a processor will execute only
authorized code, said method comprising:

15 applying an original digital signature to all authorized code;

storing said signed authorized code in a protected memory;

preparing to execute code from the protected memory by verifying a digital
signature used to sign said code in accordance with a public key, which
corresponds to said original digital signature; and

20 if said original digital signature is verified, then branching to a copy of

said authorized code in said protected memory to begin execution.

12. A method as recited in Claim 11 wherein said protected memory is cryptographically protected.

5

13. A method as recited in Claim 11 wherein the integrity of the contents of said protected memory is protected by encryption.

14. A method as recited in Claim 11 wherein said protected memory is physically protected.

10

15. A method as recited in Claim 11 wherein said public key is stored in said protected memory.

16. A method as recited in Claim 11 wherein the integrity of said authorized code is protected at run time.

15

17. A method as recited in Claim 16 wherein the integrity of said authorized code is protected with symmetric key encryption.

20

18. A method as recited in Claim 11 wherein the privacy of said
authorized code is protected at run time.

19. A method as recited in Claim 18 wherein the privacy of said
5 authorized code is protected at run time with symmetric key encryption.

20. A method as defined in Claim 11, further comprising:
storing code in the protected memory with an original digital signature
corresponding to an Owner Public Key; and
10 verifying the Owner Public Key in accordance with a Manufacturer
Public Key, which is resident on the processor, and then verifying the original
digital signature in accordance with the Owner Public Key.

21. A method as defined in Claim 20, further comprising:
15 reading a Certificate containing an Owner Public Key;
validating the Certificate with the Manufacturer Public Key;
finding the Owner Public Key in the Certificate that matches the Owner
Number in the processor; and
using the matched Owner Public Key to verify the authorized code.

20

22. A program storage device readable by machine, tangibly embodying a program of instructions executable by the machine to perform program steps for ensuring that a processor will execute only authorized code, the program steps comprising:

- 5 applying an original digital signature to all authorized code;
 storing said signed authorized code in a protected memory;
 preparing to execute code from the protected memory by verifying a digital signature used to sign said code in accordance with a public key, which corresponds to said original digital signature; and
- 10 branching to a copy of said authorized code in said protected memory to begin execution if said original digital signature is verified.